WHAT IS CLAIMED IS:

1. For use with a node, a method comprising:
    a) accepting status information from at least two protocols;
    b) composing a message including the status information; and
    c) sending the message towards a neighbor node.

2. The method of claim 1 further comprising:
    d) maintaining a first timer for tracking a send time interval, wherein the acts of composing a message and sending the message are performed after expiration of the first timer; and
    e) restarting the first timer after the message is sent.

3. The method of claim 2 wherein the message further includes a dead time interval, and wherein the send time interval is less than the dead time interval.

4. The method of claim 2 wherein the message further includes a dead time interval, and wherein the send time interval is no more than one third of the dead time interval.

5. The method of claim 2 wherein the send time interval is less than one second.

6. The method of claim 2 wherein the send time interval is less than 100 msec.

7. The method of claim 1 wherein the message further includes a dead time interval.

8. The method of claim 1 wherein the act of sending the message includes providing the message in an Internet protocol packet.

9. The method of claim 8 wherein the act of sending the message towards the neighbor node includes setting a destination address in the Internet protocol packet to a multicast address associated with routers that support aggregated protocol liveness.

10. The method of claim 1 wherein the neighbor node has at least one protocol peering with at least one of the at least two protocols.

11. The method of claim 1 wherein the status information includes a protocol state selected from a group of protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

12. For use with a node, a method comprising:

a) receiving a message including

i) for a first set of at least two protocols of a neighbor node, status information for each of the protocols of the first set, and

ii) a time interval; and

b) updating neighbor node protocol status information using the message.

13. The method of claim 12 wherein the act of updating neighbor node protocol status information includes

i) setting a first timer to the time interval and starting the first timer,

ii) if the first timer expires, setting the status of each of the protocols of the neighbor node to down, and

iii) if a further message, sourced from the neighbor node, and including

A) for a second set of at least two protocols, status information for each of the protocols of the second set, and

B) a new time interval,

is received then, resetting the first timer to the new time interval and restarting the first timer.

14. The method of claim 13 wherein each of the time interval and the new time interval is less than one second.

15. The method of claim 12 wherein the status information includes a protocol state selected from a group of protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

16. The method of claim 13 wherein the act of updating neighbor node protocol status information further includes

iv) if the further message is received then, in addition to resetting the first timer to the new time interval and restarting the first timer, further

A) determining whether the first set of at least two protocols is the same as the second set of at least two protocols,

B) if the first set of at least two protocols is determined to be the same as the second set of at least two protocols, then for each of the at least two protocols of both the first and second sets having a changed status, informing a locally running instance of the protocol of the changed status of its peer protocol of the neighbor node, and

C) if the first set of at least two protocols is determined to be different from the second set of at least two protocols, then

1) for any protocol in the second set but not in the first set, informing a locally running instance of the protocol of the status indicated in the further message of its peer protocol of the neighbor node, and

2) for any protocol in the first set but not in the second set, informing a locally running instance of the protocol that the status of its peer protocol of the neighbor node is down.

17. The method of claim 16 wherein each of the message and the further message include an indication of a relative message age, and wherein the act of updating neighbor node protocol status information includes,

iv) if the further message is received then, in addition to resetting the first timer to the new time interval and restarting the first timer, further

A) determining whether the further message is younger than the message, and

B) if it is determined that the further message is not younger than the message, then discarding the further message.

18. The method of claim 13 wherein each of the message and the further message include an indication of a relative message age, and wherein the act of updating neighbor node protocol status information includes,

iv) if the further message is received then, in addition to resetting the first timer to the new time interval and restarting the first timer, further

A) determining whether the further message is younger than the message, and

B) if it is determined that the further message is not younger than the message, then discarding the further message.

19. A method for monitoring liveness of multiple protocols, the method comprising:

a) determining, at a first node, status information for at least two protocols;

b) sending, from the first node, a message including the determined status information to a second node;

c) receiving, at the second node, the message; and

d) updating, by the second node, first node protocol status information using the message.

20. The method of claim 19 wherein the message further includes a first time interval, and wherein the act of updating neighbor node protocol status information includes

i) setting a timer to the first time interval;

ii) starting the timer;

iii) determining whether or not a further message including protocol status information is received from the first node by the second node before the expiration of the timer; and

iv) if it is determined that a further message including protocol status information is not received from the first node by the second node before the expiration of the timer, then informing peer protocols of the second node that the at least two protocols of the first node are down.

21. The method of claim 19 wherein the status information includes a protocol state selected from a group of protocols states including at least (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

22. A machine-readable medium having stored thereon a machine readable data structure comprising:

a) an indication, for at least two protocols of a node, of a state of each of the at least two protocols; and

b) a dead interval.

23. The machine-readable medium of claim 22 wherein the indication indicates a protocol state selected from a group of protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

24. The machine-readable medium of claim 22 further comprising:

c) an identifier of the node.

25. The machine-readable medium of claim 24 wherein the node is a router and wherein the identifier is a router identifier.

26. The machine-readable medium of claim 22 further comprising:

c) an interface index.

27. For use with a node, elements comprising:

a) means for accepting status information from at least two protocols;

b) means for composing a message including the status information; and

c) means for sending the message towards a neighbor node.

28. The elements of claim 27 further comprising:

d) means for maintaining a first timer for tracking a send time interval, wherein the means for composing a message and sending the message compose and send the message after expiration of the first timer; and

e) means for restarting the first timer after the message is sent.

29. The elements of claim 28 wherein the message further includes a dead time interval, and wherein the send time interval is less than the dead time interval.

30. The elements of claim 28 wherein the message further includes a dead time interval, and wherein the send time interval is no more than one third of the dead time interval.

31. The elements of claim 28 wherein the send time interval is less than one second.

32. The elements of claim 28 wherein the send time interval is less than 100 msec.

33. The elements of claim 27 wherein the message further includes a dead time interval.

34. The elements of claim 27 wherein the means for sending the message include means for providing the message in an Internet protocol packet.

35. The elements of claim 34 wherein the means for sending the message towards the neighbor node include means for setting a destination address in the Internet protocol packet to a multicast address associated with routers that support aggregated protocol liveness.

36. The elements of claim 27 wherein the neighbor node has at least one protocol peering with at least one of the at least two protocols.

37. The elements of claim 27 wherein the status information includes a protocol state selected from a group of protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

38. For use with a node, elements comprising:

a) an input for receiving a message including

i) for a first set of at least two protocols of a neighbor node, status information for each of the protocols of the first set, and

ii) a time interval; and

b) means for updating neighbor node protocol status information using the message.

39. The elements of claim 38 wherein the means for updating neighbor node protocol status information include

i) means for setting a first timer to the time interval and starting the first timer,

ii) means for setting the status of each of the protocols of the neighbor node to down if the first timer expires, and

iii) means, if a further message, sourced from the neighbor node, and including

A) for a second set of at least two protocols, status information for each of the protocols of the second set, and

B) a new time interval,

is received, for resetting the first timer to the new time interval and restarting the first timer.

40. The elements of claim 39 wherein each of the time interval and the new time interval is less than one second.

41. The elements of claim 38 wherein the status information includes a protocol state selected from a group of protocols states consisting of (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.

42. The elements of claim 39 wherein the means for updating neighbor node protocol status information further include

iv) means for

A) determining whether the first set of at least two protocols is the same as the second set of at least two protocols,

B) if the first set of at least two protocols is determined to be the same as the second set of at least two protocols, then for each of the at least two protocols of both the first and second sets having a changed status, informing a locally running instance of the protocol of the changed status of its peer protocol of the neighbor node, and

C) if the first set of at least two protocols is determined to be different from the second set of at least two protocols,

1) for any protocol in the second set but not in the first set, informing a locally running instance of the protocol of the status indicated in the further message of its peer protocol of the neighbor node, and

2) for any protocol in the first set but not in the second set, informing a locally running instance of the protocol that the status of its peer protocol of the neighbor node is down.

if the further message is received.

43. The elements of claim 42 wherein each of the message and the further message include an indication of a relative message age, and wherein the means for updating neighbor node protocol status information include,

iv) means for

A) determining whether the further message is younger than the message, and

B) if it is determined that the further message is not younger than the message, then discarding the further message.

if the further message is received.

44. The elements of claim 39 wherein each of the message and the further message include an indication of a relative message age, and wherein the means for updating neighbor node protocol status information include,

iv) means for

A) determining whether the further message is younger than the message, and

B) if it is determined that the further message is not younger than the message, then discarding the further message.

45. A system comprising:

a) a first node adapted to

i) determine status information for at least two protocols, and

ii) send a message including the determined status information to a second node; and

b) the second node adapted to

i) receive the message; and

ii) update first node protocol status information using the message.

46. The system of claim 45 wherein the message further includes a first time interval, and wherein the act of updating the first node protocol status information includes

A) setting a timer to the first time interval;

B) starting the timer;

C) determining whether or not a further message including protocol status information is received from the first node by the second node before the expiration of the timer; and

D) if it is determined that a further message including protocol status information is not received from the first node by the second node before the expiration of the timer, then informing peer protocols of the second node that the at least two protocols of the first node are down.

47. The system of claim 46 wherein the status information includes a protocol state selected from a group of protocols states including at least (A) protocol up, (B) protocol down, (C) protocol not reporting, and (D) protocol restarting.